



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,091	09/12/2003	Paul N. Marshall	P-1728-1	8866
23413	7590	08/18/2005	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			CHU, CHRIS C	
			ART UNIT	PAPER NUMBER
			2815	
DATE MAILED: 08/18/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

81

<b>Office Action Summary</b>	<b>Application No.</b> 10/662,091	<b>Applicant(s)</b> MARSHALL, PAUL N.	
	<b>Examiner</b> Chris C. Chu	<b>Art Unit</b> 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 21 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 - 15 is/are allowed.
- 6) ☒ Claim(s) 16 - 19 is/are rejected.
- 7) ☒ Claim(s) 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/3/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment filed on June 8, 2005 has been received and entered in the case.

### ***Claim Objections***

2. Claims 16 and 20 are objected to because of the following informalities:
  - (A) In claim 16, line 2, "substrate" should be --a substrate--.
  - (B) In claim 20, line 7, "each flow conduits" should be -- each of the flow conduits--.
  - (C) In claim 20, line 10, "a manifold" should be --the manifold--.Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
  - (A) In claim 16, line 7, "the first substrate cooling plate" lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 16 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Coronel et al. (U. S. Pat. No. 6,353,264).

Regarding claim 16, Coronel et al. discloses in e.g., Fig. 1 and Fig. 7 an integrated circuit package comprising:

- a plurality of circuitry wafers (16; column 5, lines 59 and 60) each comprising a substrate (the layer under the element 38; see Fig. 7) on which is carried one or more integrated circuits (40; column 7, lines 1 – 3), including a first substrate on which is carried a first optical IC (16, at the bottom; column 5, lines 61 and 62, and column 13, lines 59 – 62); and
- a plurality of cooling plates (36; column 6, lines 59 – 67), including a first cooling plate (36, at the bottom in Fig. 7), alternately layered with the circuitry wafers (see e.g., Fig. 1 and Fig. 7);
- wherein at least one of the first substrate cooling plate (14; column 5, line 59) and the first cooling plate (36, at the bottom in Fig. 7) comprises a first optical signal path (18; column 5, lines 61 and 62) therethrough and wherein the first optical IC is positioned for signal communication through the first optical signal path (see Fig. 1 and column 5, lines 61 – 65).

Regarding claim 17, Coronel et al. discloses in e.g., Fig. 1 and Fig. 7 a second optical IC (16; at the middle in Fig. 7) on a second circuitry wafer, the second optical IC being positioned for optical signal communication with the first optical IC through the first optical signal path (see Fig. 1 and column 5, lines 61 – 65).

Regarding claim 18, Coronel et al. discloses in e.g., Fig. 1 and Fig. 7 a plate optical signal path in a cooling plate (see Fig. 1 and column 5, lines 61 – 65).

Regarding claim 19, Coronel et al. discloses in e.g., Fig. 1 and Fig. 7 a substrate optical signal path in a substrate (see Fig. 1 and column 5, lines 61 – 65).

***Allowable Subject Matter***

7. Claims 1 – 15 are allowed.

(A) The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or suggest, either singularly or in combination, at least the limitation of cooling plates that define flow conduits therethrough for coolant fluid, wherein each flow conduit has two conduit ends and wherein the conduit ends are aligned at two different positions on the side of the package, and wherein the package further comprises manifolds that provide a port through which to provide coolant fluid to a plurality of flow conduits and a port to collect cooling fluid from a plurality of flow conduits, and wherein the manifolds are configured to permit access to the side of the package for providing at least one of power, data signal and control signal communication to circuitry wafers in the package.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

- (B) Claim 20 would be allowable if rewritten or amended to overcome the objection under the Claim Objections, set forth in this Office action.
- (C) Claim 21 would be allowable if rewritten to overcome the objection under the Claim Objections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

#### *Response to Arguments*

8. Applicant's arguments with respect to newly added claims 16 – 19 have been considered but are not persuasive (see previous paragraphs of this Office action).

#### *Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Art Unit: 2815

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

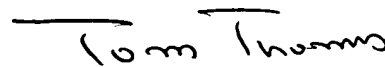
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is 571-272-1724. The examiner can normally be reached on 11:30 - 8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chris C. Chu  
Examiner  
Art Unit 2815

c.c.  
Monday, August 15, 2005



TOM THOMAS  
SUPERVISORY PATENT EXAMINER